SEQUENCE LISTING

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SUZUKI, YUJI

<120> PROCESS FOR PRODUCING PEPTIDES USING A HELPER PEPTIDE

<130> 47259.0373-US

<140> 09/402,093
<141> 1999-09-29

<150> PCT/JP99/00406
<151> 1999-01-29

<150> JP 10-32272
<151> 1998-01-30

<160> 72

<170> PatentIn Ver. 3.3

<210> 1
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Ile Glu Gly Arg
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Pro Phe His Leu Leu Val Tyr
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<220>
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Val Asp Asp Asp Asp Lys
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Gly Cys His His His His
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<223> Description of Artificial Sequence: Synthetic peptide

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<220>
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<220>
<223> Description of Artificial Sequence: Synthetic peptide

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Arg Trp Gly Arg Ser Gly Ser
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Gly Ser Gly Ser
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Gln Met His Gly Tyr Asp Ala Glu Leu Arg Leu Tyr Arg Arg His His
1 5 10 15

cgg tgg ggt cgt tcc gga tcc 69
Arg Trp Gly Arg Ser Gly Ser
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<220>
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1 5 10 15

Arg Trp Gly Arg Ser Gly Ser
20

<210> 13
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<210> 14
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<210> 16
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Met Thr Met Ile Thr Asp Ser Leu Ala Val
1 5 10

gtt tta caa cgt aaa gac tgg gat aac cct ggc gtt acc caa ctt aat 159
Val Leu Gln Arg Lys Asp Trp Asp Asn Pro Gly Val Thr Gln Leu Asn
15 20 25

cgc ctt gca gca cat ccc cct ttc gcc agc tgg cgt aat agc gac gac 207
Arg Leu Ala Ala His Pro Pro Phe Ala Ser Trp Arg Asn Ser Asp Asp
30 35 40

gcc cgc acc gat cgc cct tcc caa cag ttg cgc agc ctg aat ggc gaa 255
Ala Arg Thr Asp Arg Pro Ser Gln Gln Leu Arg Ser Leu Asn Gly Glu
45 50 55

tgg cgc ttt gcc tgg ttt ccg gca cca gaa gcg gtg ccg gca agc ttg 303
Trp Arg Phe Ala Trp Phe Pro Ala Pro Glu Ala Val Pro Ala Ser Leu
60 65 70

ctg gag tca gat ctt cct gag gcc gat act gtc gtc gtc ccc tca aac 351
Leu Glu Ser Asp Leu Pro Glu Ala Asp Thr Val Val Val Pro Ser Asn
75 80 85 90

tgg cag atg cac ggt tac gat gcg atg cat ggt tat gac gcg gag ctc 399
Trp Gln Met His Gly Tyr Asp Ala Met His Gly Tyr Asp Ala Glu Leu
95 100 105

cgc ctg tat cgc cgt cat cac ggt tcc gga tcc cct tct cga cat ccg 447
Arg Leu Tyr Arg Arg His His Gly Ser Gly Ser Pro Ser Arg His Pro
110 115 120

cgg cat gcg gaa ggt acc ttt acc agc gat gtg agc tcg tat ctg gaa 495
Arg His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu
125 130 135

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ggt cag gcg gca aaa gaa ttc atc gcg tgg ctg gtg aaa ggc cgt ggt   543
Gly Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly
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<223> Description of Artificial Sequence: Synthetic fusion protein

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Trp Asp Asn Pro Gly Val Thr Gln Leu Asn Arg Leu Ala Ala His Pro
             20                  25                  30

Pro Phe Ala Ser Trp Arg Asn Ser Asp Asp Ala Arg Thr Asp Arg Pro
         35                  40                  45

Ser Gln Gln Leu Arg Ser Leu Asn Gly Glu Trp Arg Phe Ala Trp Phe
     50                  55                  60

Pro Ala Pro Glu Ala Val Pro Ala Ser Leu Leu Glu Ser Asp Leu Pro
 65                  70                  75                  80

Glu Ala Asp Thr Val Val Val Pro Ser Asn Trp Gln Met His Gly Tyr
                 85                  90                  95

Asp Ala Met His Gly Tyr Asp Ala Glu Leu Arg Leu Tyr Arg Arg His
            100                 105                 110

His Gly Ser Gly Ser Pro Ser Arg His Pro Arg His Ala Glu Gly Thr
        115                 120                 125

Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly Gln Ala Ala Lys Glu
    130                 135                 140

Phe Ile Ala Trp Leu Val Lys Gly Arg Gly
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<210> 21
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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
fusion protein

<400> 21
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1 5 10 15

Trp Asp Asn Pro Gly Val Thr Gln Leu Asn Arg Leu Ala Ala His Pro
20 25 30

Pro Phe Ala Ser Trp Arg Asn Ser Asp Asp Ala Arg Thr Asp Arg Pro
35 40 45

Ser Gln Gln Leu Arg Ser Leu Asn Gly Glu Trp Arg Phe Ala Trp Phe
50 55 60

Pro Ala Pro Glu Ala Val Pro Ala Ser Leu Leu Glu Ser Asp Leu Pro
65 70 75 80

Glu Ala Asp Thr Val Val Val Pro Ser Asn Trp Gln Met His Gly Tyr
85 90 95

Asp Ala Pro Ile Tyr Thr Asn Val Thr Tyr Pro Ile Thr Val Asn Pro
100 105 110

Pro Phe Val Pro Thr Glu Pro His His His His His Gly Gly Arg Gln
115 120 125

Met His Gly Tyr Asp Ala Glu Leu Arg Leu Tyr Arg Arg His His Arg
130 135 140

Trp Gly Arg Ser Gly Ser Pro Ser Arg His Lys Arg His Ala Glu Gly
145 150 155 160

Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly Gln Ala Ala Lys
165 170 175

Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly
180 185

<210> 22
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<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
fusion protein

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Met Thr Met Ile Thr Asp Ser Leu Ala Val Val Leu Gln Arg Lys Asp
1 5 10 15

Trp Asp Asn Pro Gly Val Thr Gln Leu Asn Arg Leu Ala Ala His Pro
20 25 30

Pro Phe Ala Ser Trp Arg Asn Ser Asp Asp Ala Arg Thr Asp Arg Pro
35 40 45

Ser Gln Gln Leu Arg Ser Leu Asn Gly Glu Trp Arg Phe Ala Trp Phe
50 55 60

Pro Ala Pro Glu Ala Val Pro Ala Ser Leu Leu Glu Ser Asp Leu Pro
65 70 75 80

Glu Ala Asp Thr Val Val Val Pro Ser Asn Trp Gln Met His Gly Tyr
85 90 95

Asp Ala Pro Ile Tyr Thr Asn Val Thr Tyr Pro Ile Thr Val Asn Pro
100 105 110

Pro Phe Val Pro Thr Glu Pro His His His His His Gly Gly Arg Gln
115 120 125

Met His Gly Tyr Asp Ala Glu Leu Arg Leu Tyr Arg Arg His His Glu
130 135 140

Ser Gly Ser Pro Ser Arg His Lys Arg His Ala Glu Gly Thr Phe Thr
145 150 155 160

Ser Asp Val Ser Ser Tyr Leu Glu Gly Gln Ala Ala Lys Glu Phe Ile
165 170 175

Ala Trp Leu Val Lys Gly Arg Gly
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<210> 23
<211> 184
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic fusion protein

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Met Thr Met Ile Thr Asp Ser Leu Ala Val Val Leu Gln Arg Lys Asp
1 5 10 15

Trp Asp Asn Pro Gly Val Thr Gln Leu Asn Arg Leu Ala Ala His Pro
20 25 30

Pro Phe Ala Ser Trp Arg Asn Ser Asp Asp Ala Arg Thr Asp Arg Pro
35 40 45

Ser Gln Gln Leu Arg Ser Leu Asn Gly Glu Trp Arg Phe Ala Trp Phe
50 55 60

Pro Ala Pro Glu Ala Val Pro Ala Ser Leu Leu Glu Ser Asp Leu Pro
65 70 75 80

Glu Ala Asp Thr Val Val Val Pro Ser Asn Trp Gln Met His Gly Tyr
85 90 95

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Asp Ala Pro Ile Tyr Thr Asn Val Thr Tyr Pro Ile Thr Val Asn Pro
            100                 105                 110

Pro Phe Val Pro Thr Glu Pro His His His His His Gly Gly Arg Gln
        115                 120                 125

Met His Gly Tyr Asp Ala Glu Leu Arg Leu Tyr Arg Arg His His Glu
    130                 135                 140

Ser Gly Ser Pro Ser Arg His Lys Arg His Ala Glu Gly Thr Phe Thr
145                 150                 155                 160

Ser Asp Val Ser Ser Tyr Leu Glu Gly Gln Ala Ala Lys Glu Phe Ile
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Ala Trp Leu Val Lys Gly Arg Gly
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Ser Cys His Lys Arg
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<400> 25
Arg His His Gly Pro Gly
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<220>
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<400> 26
His Asp Glu Phe Glu Arg His Ala Glu Gly Thr Phe Thr Ser Asp Val
1 5 10 15

Ser Ser Tyr Leu Glu Gly Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu
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Val Lys Gly Arg Gly
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<223> Description of Artificial Sequence: Synthetic peptide

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His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg
20 25 30

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<212> PRT
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1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly
20 25 30

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<211> 28
<212> PRT
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Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys
20 25

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1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly
20 25

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<400> 31
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1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg
20 25 30

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<400> 32
His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys
20 25

<210> 33
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<220>
<223> Description of Artificial Sequence: Synthetic peptide

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1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly
20 25

<210> 34
<211> 31
<212> PRT
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Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly
20 25 30

<210> 35
<211> 32
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

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Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly Arg
20 25 30

<210> 36
<211> 33
<212> PRT
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<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 36
His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly Arg
20 25 30

Arg

<210> 37
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<212> PRT
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<220>
<223> Description of Artificial Sequence: Synthetic peptide

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His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly Lys
20 25 30

<210> 38
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<212> PRT
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<400> 38
His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly Lys
20 25 30

Lys

<210> 39
<211> 33
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<400> 39
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1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly Lys
20 25 30

Arg

<210> 40
<211> 33
<212> PRT
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<400> 40
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Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly Arg
20 25 30

Lys

<210> 41
<211> 31
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Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly
20 25 30

<210> 42
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<220>
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Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg
20 25 30

<210> 43
<211> 31
<212> PRT
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<220>
<223> Description of Artificial Sequence: Synthetic peptide

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Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly
20 25 30

<210> 44
<211> 30
<212> PRT
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<220>
<223> Description of Artificial Sequence: Synthetic peptide

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1 5 10 15

Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Lys Gly Arg
20 25 30

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<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 45
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Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Arg Gly Arg Gly
20 25 30

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<211> 30
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 46
His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Arg Gly Arg
20 25 30

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<211> 31
<212> PRT
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<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 47
His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Lys Gly
20 25 30

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<223> Description of Artificial Sequence: Synthetic peptide

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1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Lys
20 25 30

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<220>
<223> Description of Artificial Sequence: Synthetic peptide

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Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly
20 25 30

<210> 50
<211> 30
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<222> (2)
<223> Thr, Gly or Ser

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1 5 10 15

Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Lys Gly Arg
20 25 30

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<222> (2)
<223> Thr, Gly or Ser

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1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Arg Gly Arg Gly
20 25 30

<210> 52
<211> 30
<212> PRT
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<220>
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<220>
<221> MOD_RES
<222> (2)
<223> Thr, Gly or Ser

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1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Arg Gly Arg
20 25 30

<210> 53
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<222> (2)
<223> Thr, Gly or Ser

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Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Lys Gly
20 25 30

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<220>
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<223> Thr, Gly or Ser

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Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Lys
20 25 30

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1 5 10 15

Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Gly Arg Gly
20 25 30

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<211> 30
<212> PRT
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<400> 56
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1 5 10 15

Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Gly Arg
20 25 30

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<400> 57
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1 5 10 15

Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Lys Gly Lys Gly
20 25 30

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<211> 30
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<400> 58
His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Lys Gly Lys
20 25 30

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Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Arg Gly Lys Gly
20 25 30

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<400> 60
His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
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Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Arg Gly Lys
20 25 30

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20 25 30

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20 25 30

<210> 63
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<220>
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Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Lys Gly Lys Gly
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Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Gly Lys Gly
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1 5 10 15

Gln Ala Ala Arg Glu Phe Ile Ala Trp Leu Val Arg Gly Lys
20 25 30

<210> 71
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<400> 71
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<210> 72
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<400> 72
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